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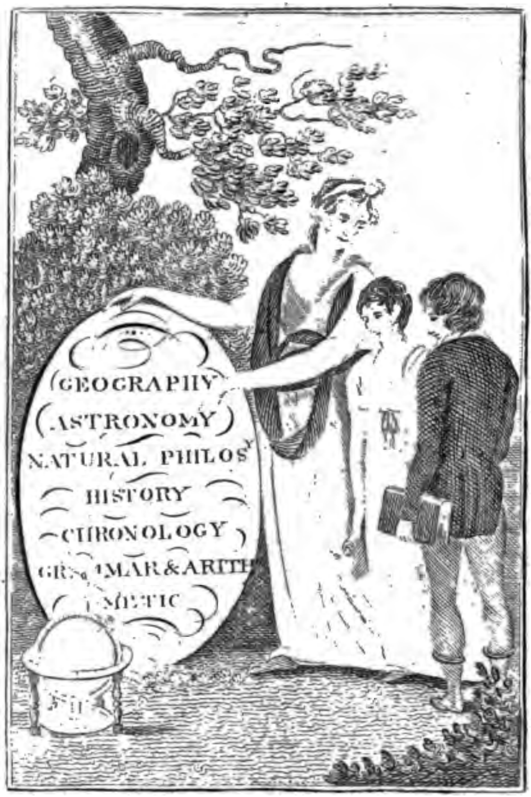

Engrav'd for Elements of Useful Knowledge

ELEMENTS
OF USEFUL
KNOWLEDGE,
IN
GEOGRAPHY, HISTORY,
AND OTHER SCIENCES.

DRAWN UP FOR THE USE OF CHILDREN
IN QUESTIONS AND ANSWERS.

By J. ALLBUT,
MASTER OF BROMSGROVE LICKEY SCHOOL.

The Ninth Edition.

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PREFACE

TO THE NINTH EDITION.

THE Author of this little Work, drew it up originally for the Use of his own Pupils; and was only induced by the Solicitations of Friends, to permit a Number of Copies to be printed off. He is convinced by Experience, that Children might be taught much earlier than they usually are, the elementary Principles of many Sciences, if they were sufficiently simplified, and divested of their technical Phrases. Such an early Introduction to general Knowledge, prevents the Formation of incorrect Ideas respecting Things with which Men are daily conversant, and smooths the Way to greater Attainments in more mature Years.

A Love of Novelty and Variety is allowed to be a distinguished Feature in the juvenile Character; and in this the Pupil is indulged, by having

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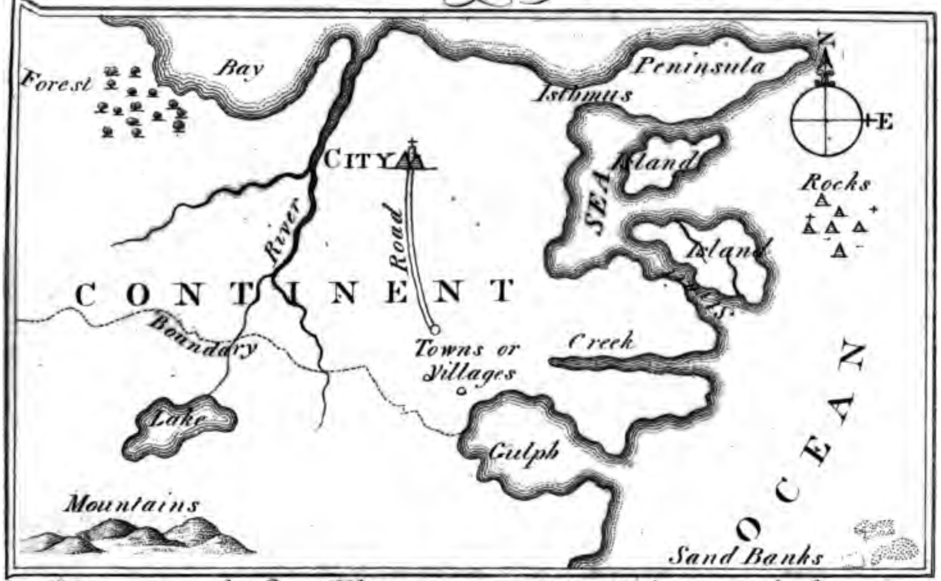
[illegible] endeavour in the present Work the [illegible] Teacher will [illegible] and from the pleasing subjects [illegible] Reflections, he shall lead the reader [illegible] Nature up to Nature's God."



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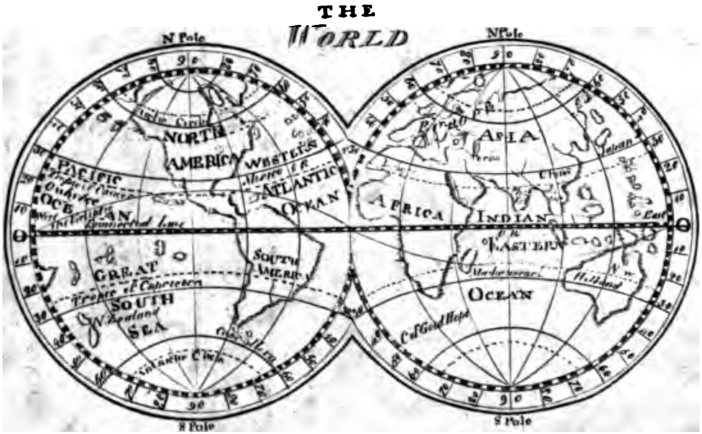
THE WORLD

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ELEMENTS

OF USEFUL

KNOWLEDGE.

PART I.

GEOGRAPHY.

1 Q. WHAT is Geography?

A. A Description of the Earth.

2 Q. What is the Earth?

A. This World in which we live.

3 Q. What Shape is the Earth?

A. It is round like a Ball, as the Moon also appears at the Full.

4 Q. How large is the Earth?

A. It is more than twenty-four thousand Miles round; and its Thickness or Diameter is about eight thousand Miles.

5 Q. How far is it from the Sun?

A. Ninety-five millions of Miles.

6 Q. Does not the Sun move round the World every Day?

A. No; for though it appears to do so, it really stands still; and the Earth turns round from West to East every twenty-four Hours; and thus produces that Appearance, which we call the rising and setting of the Sun.

7 Q. What is the Earth composed of?

A. Dry Land and Water.

8 Q. What Names are usually given to the Water?

A. Ponds, Lakes, Brooks, Rivers, Seas, Straits, Gulfs, and Oceans.

9 Q. What is a Pond?

A. A small Piece of Water in the Midst of dry Land.

10 Q. What is a Lake?

A. A very large Pond.—Some Lakes are several Miles long and wide.

11 Q. What is a Brook?

A. A narrow Stream of Water.

12 Q. What is a River?

A. A larger Stream, which runs a great many Miles, and at last reaches the Sea.

13 Q. What is a Sea?

A. A great Body of Water, which separates many Countries and Kingdoms: it is also different from other water, being salt to the Taste.

14 Q. What is a Strait?

A. A Narrow Channel from one Sea to another.

15 Q. What is a Gulf?

A. A Part of the Sea almost surrounded with Land.

16 Q. What is an Ocean?

A. A vastly large Sea, which Ships are many Weeks in crossing over.

17 Q. How is that Part of the Earth divided which is composed of dry Land?

A. Into four Quarters: Europe, Asia, Africa, and America. And the main

Land of each of these is called a Continent; as, The Continent of Europe, The Continent of America, &c.

18 Q. What is a Continent?

A. An immense Tract of Land, which contains many Nations.

19 Q. What is an Island?

A. A smaller Piece of Land, which is entirely surrounded with Water.

20 Q. What is a Peninsula?

A. A Part of the Land almost surrounded with Water.

21 Q. Which are the chief Nations on the Continent of Europe?

A. France, Spain, Germany, Prussia, Denmark, Sweden, Russia, Turkey, and Italy: and besides these, there are several smaller States.

22 Q. Are there no other Nations of considerable Importance in Europe?

A. Yes; particularly Great Britain and Ireland, which are large and populous Islands, and, together with some smaller Islands, are united under one Government.

23 Q. How are these Nations situated?

A. Great Britain is an Island about seven hundred Miles long: the South Part of it is called England, and the North Part Scotland. Ireland is another Island, lying to the West; and is about three hundred Miles long.

24 Q. Have these Countries always had one Government?

A. No; they were once distinct, independent Nations, and had their different Kings and Princes; but now they are all united under one Sovereign.

25 Q. Where do the King and Government reside?

A. In London; which is the Metropolis of England, and is believed to be the largest City in Europe.

26 Q. Which is the chief City in Scotland? A. Edinburgh.

27 Q. Which is the chief City in Ireland? *A*. Dublin.

28 Q. How many Inhabitants are supposed to dwell in each of these Cities?

A. London and its Environs contain about a million Persons; Edinburgh more than one hundred thousand; and Dublin nearly three hundred thousand.

29 Q. How far is it from London to Edinburgh?

A. It is nearly four hundred Miles.

30 Q. How far is it from London to Dublin?

A. Two hundred and seventy Miles.

31 Q. In what Manner are all the Nations in the World best represented, so as to shew their Situations, Distances, and Extent?

A. Upon a Globe made for that Purpose; on which the Boundaries of the Land and Sea are marked by proper Lines, and the Names of the four Quarters of the World, different Countries and Cities, are written on those Parts where they are supposed to stand.

32 Q. Why is this the best Way of describing the different Parts of the World?

A. Because these small Globes are just the Shape that the Earth really is; and they may be turned round in the same Manner that the Earth turns every Day, and thus shew how every Part of the Earth is presented successively towards the Sun.

33 Q. Is there no other Way of describing these large Parts of the World, but upon Globes?

A. Yes; they are frequently drawn upon Maps; which are flat Sheets of Paper; and sometimes pasted on Cloth, to make them stronger for Use.

34 Q. How are these Maps constructed?

A. One Part of the World is drawn by itself, in its right Shape, on one Map; and the Names of its Cities marked in it:

and another Part of the World is drawn on another Map in like Manner.

35 Q. What is the Advantage of drawing them thus separately?

A. Each Part is thus drawn so much larger, that its Cities and smaller Divisions may be more accurately marked and discerned.

36 Q. Are there many Maps in common Use?

A. Yes; a great many: for besides Maps of the World, Europe, Asia, Africa, and America, there are distinct Maps of Nations, and even Parts of Nations; as England, Ireland, France, Yorkshire, and many other Places.

37 Q. Is any general Rule observed in the Situation of Places described on Maps?

A. Yes; the Top of the Paper is North, and the Bottom is South; the right Hand Side is East, and the left is West.

38 Q. Shew me on a Map the different Quarters of the World.

39 Q. Which is Europe? Shew me with your Finger how far it extends.

40 Q. Point out Africa in the same Way.

41 Q. Now shew me Asia.

42 Q. Shew me the Boundaries of America.

43 Q. Is not America almost divided into two Parts?

A. Yes; and they are joined only by a narrow Piece of Land, called an Isthmus.

44 Q. What are the other Parts of that vast Continent called?

A. North America, and South America.

45 Q. Which is North America?

46 Q. Which is South America?

47 Q. Is there any great Difference between the People of different Nations?

A. Yes; they talk very different Languages; are of very different Dispositions; and many differ in their Colour.

48 Q. What are the principal Colours of the Inhabitants of the World?

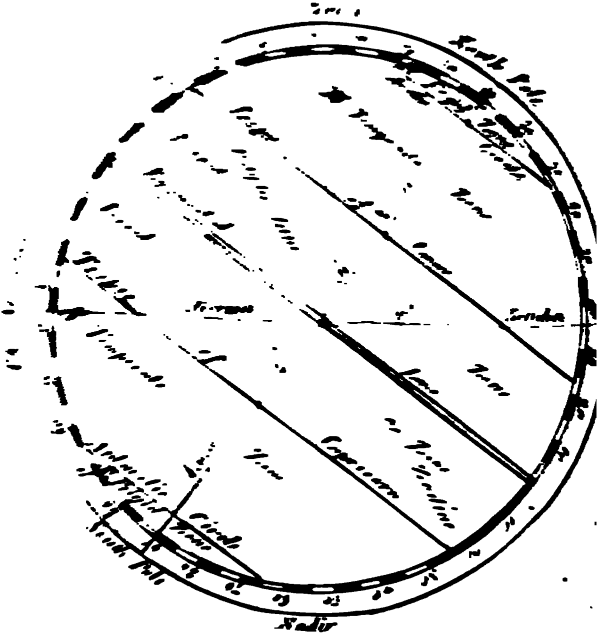
A. Most of the People in Europe are nearly white: those in Asia are much darker: in Africa they are generally black; and in America the Natives are either black or Copper-coloured.

49 Q. What Opinion ought we to form of People so various in Appearance?

A. That they are all our fellow Creatures, made by the same God, possest of the same Kind of intelligent Soul; and all entitled to our Compassion and Regard, as far as we have Opportunity to do them good.

◆

To make the Substance of this Catechism familiar, the Instructor should frequently produce the Maps of the four Quarters of the Globe, and of Great Britain; and shew by them the relative Situations of the different Parts.



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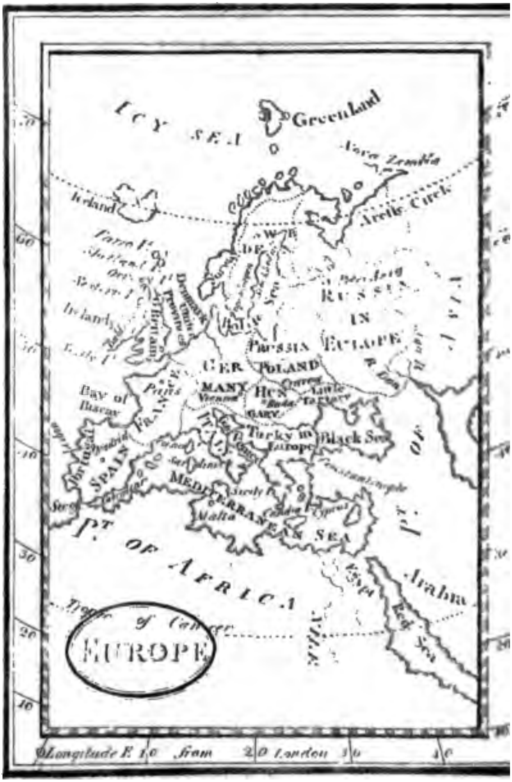

ELEMENTS
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PART III.

EUROPE.

1 Q. GIVE me some Account of Europe.

A. It is the least Quarter of the Globe, but of the most Renown, for the Temperature of the Air, the Fruitfulness of the Soil, the Study of the Arts and Sciences, but above all, for the Establishment of the Christian Religion.

2 Q. What is the Extent of Europe?

A. It is about three thousand Miles from East, to West, and two thouſand five hundred Miles from North, to South.

3 Q. Name the capital Cities in the North of Europe.

A. Bergen, the Capital of Norway, Stockholm of Sweden, Copenhagen of Denmark, and Petersburgh of Russia.

4 Q. Name the capital Cities in the *Middle of* Europe.

A. ———— FIRST ROW.

Amsterdam of the United Provinces, Vienna of Germany, Konningsburg of Prussia, and Warsaw of Poland.

SECOND ROW.

Paris of France, Berne of Switzerland, Presburg of Hungary, and Oczakow of Little Tartary.

5 Q. Which are the capital Cities in the South of Europe?

A. Lisbon of Portugal, Madrid of Spain, Rome of Italy, and Constantinople of Turkey in Europe.

6 Q. Which is the largest of these States?

A. Russia is by far the most extensive, being nearly as large as all the rest of Europe.

7 Q. Has any great Change taken place in the Empire of Russia?

A. The People, as well as the Face of the Country, were wild and barbarous, till the Reign of the Emperor Peter, (called Peter the Great) who reigned *about one* hundred years ago, and travelled *into* England and other Parts, to learn how to civilize and improve the State of his own People.

8 Q. What do you observe of Germany ?

A. Germany contains several distinct States, known by the Name of Circles, governed by their own Laws, but united under one Sovereign, who is called Emperor.

9 Q What is remarkable in the History of Poland ?

A. The Kingdom of Poland was, a few years since, cruelly dismembered by the Sovereigns of Russia, Germany, and Prussia, who, like three public Robbers, divided it among themselves : but these Nations, have in their turn been scourged by the French.

10 Q. What happened to the Poles after this unjust Partition ?

A. The Empress of Russia, in violation of the most solemn Treaties, sent an Army to seize upon their remaining Territory. The Poles bravely defended themselves in the City of Warsaw ; but it was at length taken by Assault, an many thousands fell in the dreadful Carnage that ensued.

11 Q. Has not a remarkable Revolution happened in the Government of France?

A. This Country was formerly a Monarchy, being governed by Kings; the last of whom, Louis XVI. was beheaded by his Subjects, although one of the mildest that had ever sat upon that Throne.

12 Q. How has it been governed since?

A. It has since that period suffered many changes, and been the Scene of much Bloodshed; but at length Napoleon Bonaparte was created Emperor with more unlimited power than any of their Kings ever possessed.

13 Q. Can you relate any further particulars concerning France.

A. France is esteemed the most powerful Nation on the Continent of Europe, having of late Years very much extended her Dominions. It lies South of *England*, and is only separated from it by a part of the Sea, twenty-one Miles broad, called the Straits of Dover.

14 Q. What is the Character of the French?

A. They are polite, lively, and ingenious.

15. Q. Have you any thing particular to observe in regard to Rome?

A. From a few insignificant Huts, it rose to the highest pitch of grandeur, and became the Seat of a most extensive Empire.

16 Q. What is the present state of Rome?

A. It is now the Metropolis of a very small extent of Country; and instead of that intrepid Valour for which the Romans were once famous, they are now noted chiefly for their effeminacy.

17 Q. What do you say of Turkey?

A. Turkey is the farthermost Country of Southern Europe; it is an Empire of great extent, situated in a delightful climate, and possessing a fruitful soil; but the Inhabitants are often visited with the Plague.

18 Q. What is observable of the Turks?

A. They are a well made and robus

People, very grave and sedate, but almost perfect Strangers to Learning, their Lives being passed in Indolence and Stupidity.

19 Q. Name some of the chief Mountains of Europe.

A. The Pyrenees; a Ridge of Mountains above two hundred Miles in length, which divide France from Spain. The Alps; dividing Italy from France, Switzerland, and Germany: and the Appennines; a Chain of Mountains which divide Italy through its whole Length.

20 Q. Are there any Volcanoes or burning Mountains in Europe?

A. Yes; Vesuvius, near Naples in Italy; Mount Etna, in Sicily; and Mount Heckla, in Iceland.

21 Q. Which are the principal Rivers in Europe?

A. The Elbe, the Danube, and the Rhine, in Germany. The Seine, the Loire, the Rhone, and the Garonne, in France. The Tagus in Portugal; the *Ebro, and the* Douro in Spain; the Tiber *in Italy;* the Vistula in Poland; the *Don and* Wolga in Russia.

MOUNT VESUVIUS.

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22 Q. What Islands belong to Europe?

A. To the North of the British Islands is Iceland; in the Baltic are Zealand, Gothland, and Fuen; in the Mediterranean are Ivica, Majorca, Minorca, Corsica, Sardinia, Malta, Sicily, and Candia.

23 Q. What are the principal Productions of Europe.

A. The Northern Parts produce Masts, Oak and Fir-timber, Copper, Iron, Furs, Skins, Hemp, Tallow, Pitch and Tar. From middle Europe we receive Lace, Silk, Velvet, Woollen Cloth, Toys and Tapestry. From the South, our best Wines, Oranges, Lemons, Figs, Raisins, Prunes and Chesnuts.

ASIA.

21 Q. Name the chief Countries of Asia, with their capital Cities.

NORTH.

Countries.	*Capital Cities.*
A. Georgia	Tefflis.
Great Tartary	Tobolsk.
Holy Land	Jerusalem.
Persia	Ispahan.
Mogul Empire	Delhi.
China	Pekin.

SOUTHERN.

Arabia	Mecca.
East Indies	Calcutta & Madras.

25 Q. What is remarkable of Asia?

A. Asia is famous for the Creation of our first Parents, the Birth of our Saviour, and for being the Place where most of the Actions recorded in Scripture were performed.

26 Q. What Sort of People inhabit Tartary?

A. The Tartars are noted for their wandering Lives; but what claims our more particular Attention is, their great Affection for their Parents, and Submission to their Authority.

27 Q. Give me some Account of the Holy Land, and the several Names by which it has anciently been known.

A. It was called Palestine, from the Philistines, who inhabited the Sea Coast: The Promised Land, from its being promised to the Israelites on their Departure out of Egypt: Judea from the Patriarch Judah: and the Title of Holy Land is now assumed, from its having been the Scene of the Birth, Ministry, and the Death of Jesus Christ.

28 Q. Relate a few of the Circumstances recorded of Jerusalem.

A. This City was famous for a most magnificent Temple, built by Solomon, for the Worship of God: it was destroyed by Nebuchadnezzar, but some Time after rebuilt by the Command of Cyrus.

Our Saviour foretold the destruction of both the Temple and City, which happened about forty Years after, when it was destroyed by the Romans, and the very Foundation thereof ploughed up.

29 Q What do you say of Persia?

A. This Country is not very fertile, except in the Southern Parts.

30 Q. What do you observe of the Mogul Empire, or Hindoostan?

A. All this Country is distinguished for its Fertility. A shocking Custom formerly prevailed here, of the Wives burning themselves on the Death of their Husbands.

31 Q. Is any Thing worthy of Note in *China*?

A. China is an Empire of vast Extent.

and boasts of the greatest Antiquity of any State upon Earth. It is separated from Tartary by a Wall, near one thousand five hundred Miles in Length, and broad enough for five or six Horsemen to travel on it abreast.

32 Q Can you give me a particular Description of the Chinese?

A. The Chinese are remarkably shy of Strangers, whom they will not suffer to settle amongst them. They keep up an immense warlike Force for their Security, but are less engaged in Wars than any People.—It is China alone that produces the great Quantities of Tea that are used in every Part of Europe.

33 Q. What do you observe of the Religion and Habits of the Chinese?

A. The Chinese entertain the greatest Contempt for all other Nations, whom they regard as inferior to themselves—Their Religion is gross Paganism, and they have an annual Custom in which they express their Detestation to Christianity.

34 Q. What Kind of People inhabit *Arabia*?

A. Most of them are Wanderers, like the Tartars, and are very much addicted to thieving. They are the Descendants of Ishmael, of whom it was foretold, that his Hand should be against every Man, and every Man's Hand against him.

35 Q. What else do you observe of Arabia?

A. This is the Wilderness through which the Children of Israel passed in their Rout from Egypt to Canaan. It has three grand Divions: the Stony, the Desart, and the Happy.

36 Q. How do you describe the East Indies?

A. It includes a large Extent of Country on the Continent of Asia, besides the numerous Islands in the Eastern and Indian Ocean.

37 Q. Which are the chief Rivers in Asia?

A. The Euphrates and Tigris, in Persia; and the Ganges, in the East Indies.

38 Q. Name some of the principal *Mountains* of Asia.

A. Mount Taurus, running from Georgia to the East Indies; Libannus, between Syria and Palestine, called in Scripture, Mount Lebanon; and Sinai, in Arabia, where the Almighty delivered the Law to the Israelites.

39 Q. Which are the most considerable Islands of Asia?

A. The Isles of Japan, Formosa, Phillippine Islands, the Molucco Islands, the Isles of Sunda, the Maldives and Ceylon, with Cyprus and Rhodes in the Mediterranean; but the most considerable in Size, is New Holland, which is larger than all Europe.

40 Q. In what does the Trade of Asia consist?

A. In Tartary are Sables, Martins, Furs, Iron, Rhubarb, Musk, *&*c. In other Parts, Silk, Cotton, Tapestry, Mohair, Spices, Drugs, Coffee, Tea, Gold-dust, Quicksilver, Diamonds, Porcelain, and Japan Ware.

END OF THE THIRD PART.

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PART IV.

AFRICA.

1 Q. HOW is Africa bounded?

A. It is bounded on all Sides by the Sea, except a narrow Part called the Isthmus of Suez, which joins it to Asia.

2 Q. Which are the chief Countries of Africa?

A. Morocco, Algiers, Egypt, Negroland, Guinea, Ethiopia, and the Land of the Hottentots; but many of the foregoing have no Cities.

3 Q. What Account do you give of Morocco, and the States of Barbary?

A. They subsist mostly by Plunder; are much addicted to Pyracy, or robbing on the Sea; and all the Prisoners they take are sold for Slaves, and treated with great Brutality.

4 Q. Which is the principal of the African States?

A. Egypt is by far the most considerable Country of Africa. Many affecting and remarkable Events relating to this Place, are recorded in the Books of Genesis and Exodus.

5 Q. What remarkable Event has lately taken Place in Egypt?

A. An Expedition of the French, under Bonaparte, who took Possession of the Country, but were driven out again by the English, commanded by the brave Abercrombie, who fell (like General Wolfe) in the Arms of Victory.

6 Q. What are the other Parts of Africa, most worthy of Notice?

A. But little is known to Europeans of the internal Parts. In Guinea is a new Settlement of the English, who purchased the Land of the Prince of the Country. On this Coast are several Factories, where the Productions of other Countries are exchanged for the Persons of the Natives, who are carried off for Slaves.

7 Q. What Sort of People are the Hottentots.

A. The most filthy of the human Race, bedaubing themselves with a Mixture of Soot and Grease by way of Ornament; but they are said to be hospitable and kind to Strangers.

8 Q. Name the principal Islands of Africa.

A. Madagascar, an Island of great Length: it is uneven and hilly, but the Face of the Country is one of the most agreeable in the World. Cape Verd

Islands; so called from their beautiful Verdure. Canary, formerly called the Fortunate Islands, seven in Number, whence the Canary Birds originally came. And lastly, Madeira; principal of a Group called the Madeiras.

9 Q. Which are the chief Rivers of Africa?

A. The Nile in Egypt, Senegal in Negroland, and Sierra Leone in Guinea.

10 Q. Name the principal Mountains in this Quarter of the Globe.

A. The Mountains of the Moon in Ethiopia, and Peak of Teneriff, in the Island of Teneriff.

11 Q. Is there any Thing remarkable in the Peak of Teneriff?

A. This Mountain is a real Wonder in Nature: it is in the Form of a Sugar Loaf, about fifteen Miles round, and near three Miles high; and may be seen above one hundred Miles off in a clear Day.

AMERICA.

12 Q. From whence does America derive its Name?

A. From Americus Vespusius, who is said to have brought the first Map of the Country into Europe. It is sometimes called the New World, because not known to the Ancients.

13 Q. How is America divided?

A. It is divided by Nature into two Parts, called North and South America.

14 Q. What are the principal Divisions of North America?

A. The British Dominions, consisting of New Britain, Canada, and Nova Scotia. The united States, which also formerly belonged to this Country: and the Dominions of Spain, containing Old Mexico, New Mexico, Louisiana, East and West Florida.

15 Q. Which is the principal of the British Dominions in North America?

A. Canada is on several Accounts most worthy of Notice. It was taken from the French by General Wolfe, although he expired on the Field of Battle in the Moment of Victory. In Regard to the Trade of Canada, Skins and Furs are to be obtained here in Abundance.

16 Q. How came the united States to attain their present Independence?

A. By a War with England, which lasted seven Years, wherein the Americans were victorious; when their Country was acknowledged free and independent.

17 Q. What was the Cause of this War?

A. The Americans refused to be taxed without their own Consent, and a Ship's Cargo of Tea subject to the Payment of a Duty being sent to Boston, it was all thrown into the Sea. This with other Acts of Hostility, determined our Government to endeavour to subdue them by Force of Arms, which brought on a bloody War, that ended at last in a total Separation.

18 Q. By what Means were the American States peopled with their present Inhabitants?

A. The newly discovered Land being found capable of great Improvement, and promising peculiar Advantages to this Country, Encouragement was given to Families and Individuals to settle there; and Labourers and Artificers of all Sorts went over. Their Numbers were much increased by many thousands, who fled from religious Persecution, till those States were formed, which bid fair in Time to become the first Empire in the World.

19 Q. What are the Divisions of the United States?

A. 1. New Hampshire,
2. Massachusetts Bay,
3. Rhode Island and Providence Plantation,
4. Connecticut,
5. New York,
6. New Jersey,
7. Pennsylvania,
8. Delaware,
9. Mary Land,
10. Virginia.
11. North Carolina,
12. South Carolina,
13. Georgia.

To the above thirteen States, those of Vermont and Kentucky are now added.

20 Q. In what does the Trade of the United States consist?

A. In Grain, Cotton, Silk, Skins, Furs, Feathers, Cochineal, Logwood, Mahogany, Tobacco, Iron, Sugar, and several Sorts of Drugs.

21 Q. Are there any Mountains, Lakes, or Rivers of Note in North America?

A. The Allegany Mountains, between the Mississippi and Atlantic, extend nine hundred Miles in Length. There are five great Lakes, the least of which is six hundred Miles round. And the Mississippi and St. Lawrence are large navigable Rivers.

22 Q. Where is the Seat of Government held?

A. It was lately removed from Philadelphia to Washington, a City laid out on a most extensive Plan, and which, when complete, will be one of the finest in the World.

23 Q. How did the Spaniards behave in the Conquest of their American Territories?

A. Their insatiable Thirst for Gold led them to commit Barbarities unheard of among civilized Nations; and millions in Mexico and Peru were destroyed by these cruel Invaders.

24 Q. Give me some Account of South America.

A. The French, Dutch, Spaniards, and Portuguese, have Settlements in this Quarter of the Globe; but a great Part of the Country remains unknown to Europeans. Peru is most distinguished for its Mines of Gold and Silver; and from

Brazil comes great Quantities of Brazil Wood, used in dying red Colour. Amazonia derives its Name from a Number of warlike Women, seen upon the Coast when it was first discovered. Patagonia is but little known: the most remarkable Thing of this Country is, the lofty Height of its Inhabitants.

WEST INDIES.

25 Q. What are those Islands called which lie in the Atlantic Ocean, between North and South America?

A. They are called the West Indies, because discovered in endeavouring to find a West Passage to the East Indies.

26 Q. Can you tell me the Names of the principal West India Islands?

A. The most northern are the Bahamas; a Cluster of Islands, twelve of which are fertile, and the Rest barren Rocks. Cuba is a large Island, subject to the Spaniards. St. Domingo was a

French Island, beautifully diversified with Hills and Dales.—It has suffered great Commotions from the Insurrection of the Negroes. Jamaica is of an oval Figure, divided by a Ridge of Hills running from East to West: it is fertile to a wonderful Degree. Porto-Rico, subject to the Spaniards, is full of high Mountains and rich Valleys. There are many others, but the foregoing are the principal.

27 Q. What is the chief Production of the West Indies?

A. Sugar is the grand Produce of all these Islands, which is cultivated by Negroes, who are brought hither from Africa as Slaves, and sold in an open Market-place.

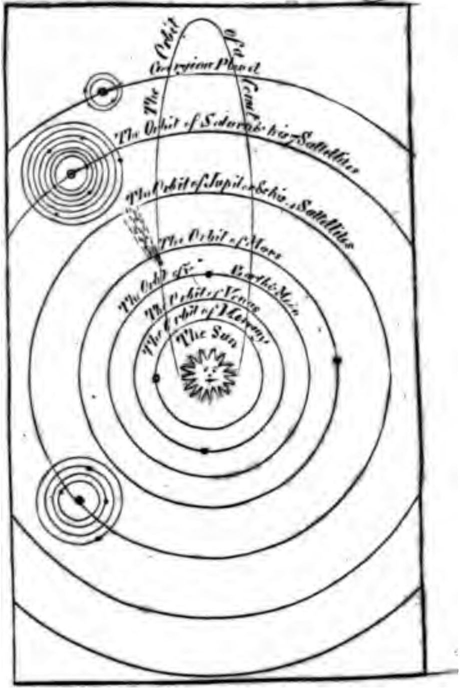
28 Q. Have you given an Account of every Part of the Earth?

A. Many Islands in the Pacific Ocean have been discovered by Captain Cooke, Particulars of which may be learnt from his Voyages. And a great Portion of the Earth is still unknown.

29 Q. With what Reflections shall we close our Description of the Earth?

A. Remembering that the whole World is a Storehouse for the Use of Man, fraught with every Convenience for our Support and Pleasure while we continue in it; all provided by the Bounty and Love of our great Creator. May we, by a holy and pious Life, ensure his Favour here, that he may hereafter receive us to Life eternal.

END OF GEOGRAPHY.


The Orbit of a Comet
Georgian Planet
The Orbit of Saturn & his 7 Satellites
The Orbit of Jupiter & his 4 Satellites
The Orbit of Mars
The Orbit of the Earth & Moon
The Orbit of Venus
The Orbit of Mercury
The Sun

The Solar System

ELEMENTS
OF USEFUL
KNOWLEDGE.

PART V.

ASTRONOMY.

1 Q. WHAT is Astronomy?

A. The study of the Heavenly Bodies, their proper Places, Motions and Use.

2 Q. What is the Universe?

A. That wide Expanse in which all Bodies have their Existence.

3 Q. What is a System?

A. A number of Bodies, which move about one common Centre or Point.

4 Q. To what Part of the Universe do we belong?

A. To the Solar System; so called, because the Bodies which compose it [illegible]ve round the Sun as their Centre.

5. Q. What is the Sun?

A. A Body of Fire, which by its Warmth and Heat promotes the Growth of Vegetables, cherishes Animal Life, and raises Vapours from the Sea, without which we should have no Rain.

6 Q. What Bodies belong to the Solar System?

A. The Planets, their Moons, and the Comets.

7 Q. Name the Planets?

A. Mercury, Venus, the Earth, Mars, Jupiter, Saturn, and the Georgium Sidus.

8 Q. Are these Planets all placed at an equal Distance from the Sun?

A. They are placed at different Distances; and perform their Revolutions round it in very different Periods.

9 Q. How are the Earth and the other Planets supported?

A. They hang as it were in the Air,

without any visible Cause to support them from above, or uphold them from beneath.

10 Q. Has not the Sun any Motion then?

A. Although it always preserves its Station in the Centre of our System, yet it has a Motion on its own Axis, just like a Spinning Wheel, which keeps turning round without moving from its Place.

MERCURY.

11 Q. Which is the nearest Planet to the Sun?

A. Mercury, which performs a Revolution round it in three Months, travelling nearly as fast again as the Earth. It is so near the Sun, that its Heat is sufficient to make Water boil. It sometimes comes between us and the Sun, when it appears like a little black Spot.

VENUS.

12 Q. Which is the next Planet to Mercury?

A. Venus; whose Revolution round the Sun is completed in about seven Months and a half: it turns round also upon its own Axis in twenty-three Hours and a half, which gives it a Day and Night something less than ours. Venus is the brightest of all the heavenly Bodies: It is sometimes a Morning and sometimes an Evening Star.

THE EARTH.

13 Q. How is the Earth situated in the Solar System?

A. It is the third Planet from the Sun, about which it moves in the Space of a Year; and turns round on its own Axis every twenty-four Hours, making a Day and Night.

The Earth travels with us at the amazing Rate of fifty-eight thousand Miles an Hour, although we are not sensible of any Motion at all.

14 Q. Why are we insensible of the Motion of the Earth?

A. Because the Atmosphere, the Clouds, and all surrounding Objects, move with us at the same Time.

15 Q. What Benefit do we derive from the Earth's daily or diurnal Revolution?

A. It is the Cause of Day and Night throughout the World at different Times: were it not for this Motion, one Part of the World would remain six Months in extreme Cold and Darkness, while the other Part would be scorched with Heat, and wearied out with continual Light.

16 Q. What Changes are effected by the annual or yearly Revolution of the Earth?

A. In the Course of the Earth's annual Revolution, the different Seasons of Spring, Summer, Autumn and Winter are produced.

MARS.

17 Q. Which Planet moves next round the Sun?

A. Mars, in something less than two of our Years; and performs its diurnal Revolution in about twenty-five Hours. It is the smallest of the Planets except Mercury; and is remarkable for its red Colour.

JUPITER.

18 Q. Which Planet do you next describe?

A. Jupiter; which is a thousand times larger than the Earth, and much larger than any of the other Planets: It revolves round the Sun in nearly twelve Years, and performs its diurnal Revolution in ten Hours.

19 Q. Is there any Thing remarkable in the Appearance of Jupiter?

A. A number of Lines or Spots are seen on its Surface, called Jupiter's Belts: they are supposed to be formed by the Swiftness of its diurnal motion drawing its Vapours and Clouds into Streaks.

SATURN.

20 Q. What are the Periods of Saturn's Revolutions?

A. It has been discovered by Dr. Herschel to revolve on its own Axis in ten Hours and a quarter: its annual Revolution is completed in twenty-nine Years and a half.

21 Q. What is meant by Saturn's Ring.

A. A broad thin Ring, set edge ways round it at a Distance from its Surface,

GEORGIUM SIDUS.

22 Q. Name the next Planet.

A. Georgium Sidus; which was discovered by Dr. Herschel, and so named out of Respect to his Majesty George the Third.

23 Q. What do you observe of the Revolutions of this Planet?

A. It performs its Journey round the Sun in eighty-three Years; but owing to its great Distance, its diurnal Revolution has not been ascertained.

THE MOON.

24 Q. Of what Nature is the Moon?

A. It is of itself a dark Body, and shines only by Reflection; receiving its Light, like our Earth, from the Sun.

25 Q. What is the Situation of the Moon?

A. It is a constant Attendant on our Earth, revolves round it every Month, and in that Space of Time shews its various Appearances of new, horned, full, &c. Being the nearest to us, it appears the largest, though in Reality it is the smallest of all the heavenly Bodies.

26 Q. What occasions those different Appearances of the Moon?

A. When it is on that Side of the Earth next the Sun, the dark Side is turned towards us, it is then called the Change; when it has passed through one Quarter of its Orbit we see half of its enlightened Part; when half Way, it shews a full Face; and when three Quarters round, it appears a Half-Moon again.

27 Q. What Appearance has the Moon through a Telescope?

A. Through a good Glass it appears to possess Land and Water, Mountains and Valleys, besides a Volcano or burning Mountain.

28 Q. What Benefit do we receive from the Moon?

A. Besides enlightening our dark Nights, by its Influence it agitates and purifies the Sea, and regulates the Tides.

29 Q. As the Earth travels at such a prodigious Rate, how is it that the Moon is not left behind?

A. Because the Moon is kept near the Earth by a secret Power, called Attraction of Gravitation, preserving it in its Orbit, so that the Moon must accompany the Earth let its Motion be ever so swift. By this Law also the Planets are kept in their Orbits round the Sun.

ECLIPSES.*

30 Q. What is an Eclipse of the Sun?

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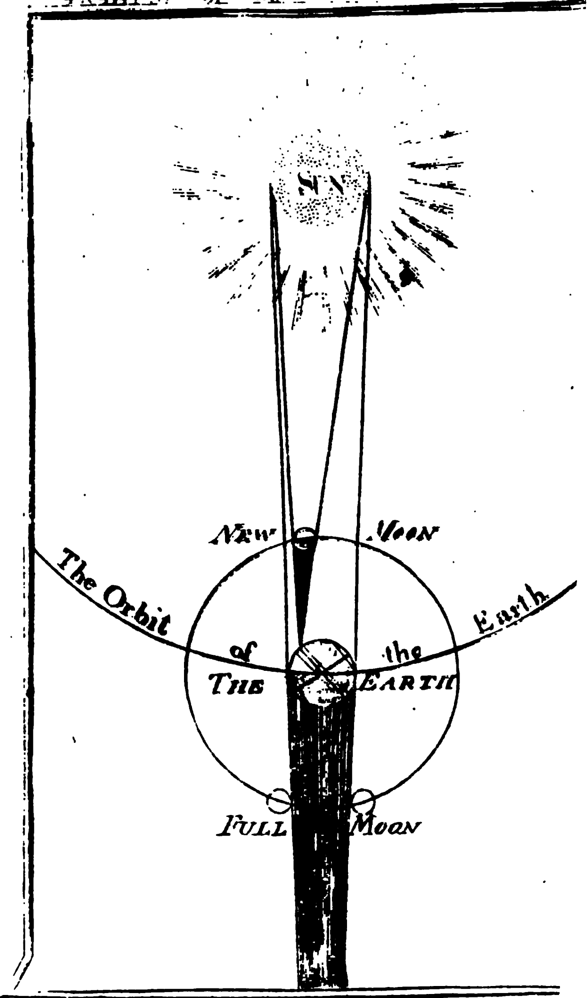
* The annexed Plate represents the Moon in its Orbit round the Earth, while that moves in an Orbit about the *Sun*; one Part being enlightened by its Rays, while a Shadow is cast from the opposite Side.

ECLIPSE of the SUN and MOON



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A. It is caused by the Moon passing between us and the Sun, and as the Moon is a dark Body, it for a Time hinders the Sun's Light.

31 Q. What is an Eclipse of the Moon?

A. It is occasioned by the Earth being in a direct Line between that and the Sun, by which Means the Earth's Shadow appears like a dark Body passing over the Moon.

32 Q. When must Eclipses happen?

A. An Eclipse of the Sun can never happen but at the new Moon; and an Eclipse of the Moon when it is at the Full.

33 Q. Have the other Planets Moons as well as our Earth?

A. Venus has one, Jupiter four, Saturn seven, and Georgium Sidus two.—These with our Moon are called Satellites, or secondary Planets.

34 Q. Are there, any other Planet belonging to our System besides the seven already named?

A. Other Bodies have been discovered, supposed to be primary Planets, a particular Description of which must be left for future Observations. Some Astronomers reckon also a greater Number of secondary Planets.

35 Q. Are the Planets well accommodated for Inhabitants?

A. It is the Opinion of Philosophers, that the Almighty, who never created any Thing in vain, formed these as well as our Earth to be the Habitations of intelligent Beings.

ELEMENTS

OF USEFUL

KNOWLEDGE.

PART VI.

COMETS.

1 Q. WHAT are the Comets?

A. A Kind of Planets belonging to our System, but the Periods of whose Revolutions round the Sun are so great that the Nature of them is still unknown.

2 Q. What are those numerous Stars which we see in a clear Evening?

A. They are supposed to be Suns, enlightening more distant Worlds; and are called Fixed Stars, because they always keep the same Distances from each other.

3 Q. Do not the Stars all appear to move like the Sun from East to West?

A. This apparent Movement of the Stars, like that of the Sun, is caused by the diurnal Revolution of the Earth, which is continually carrying us with an insensible Motion* from West to East.

4 Q. How do you know a Planet from a fixed Star?

A. The Stars always twinkle; but the Planets shine with a steady Light like the Moon.

5 Q. What is the Cause of this twinkling?

A. It is occasioned by small Particles or Vapours, floating in the Air.

6 Q. How many fixed Stars are there?

A. The better the Glasses made use of, the greater Numbers have been discovered; so that according to the Language of Men, they are innumerable.

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* This may be explained by the familiar Circumstance of sailing in a Boat down a River, or travelling in a Carriage along a smooth Road, which gives the Appearance of a retrograde Motion to the surrounding Objects.

7 Q. Is it not possible then to see the whole of the fixed Stars with the Assistance of good Glasses?

A. Utterly impossible, as millions of them never have, nor ever can be discovered, by Reason of their remote Distance.

8 Q. What do you call that white Appearance, which describes a Path in the Heavens, and is seen in a Star-light Evening?

A. It is called the Galaxy, or milky Way; and is supposed to proceed from the Light of a great Number of small Stars, whose vast Distances prevent their being clearly seen.

9 Q. How are the Stars distinguished?

A. They are classed into Stars of the first, second, third, fourth, fifth, and sixth

[illegible]

[illegible] Signs of [illegible]

[illegible] Constellations are [illegible]

[illegible] northern Part of the Heavens, or northern Hemisphere; [illegible] in the southern Hemisphere; and twelve in the Zodiac.

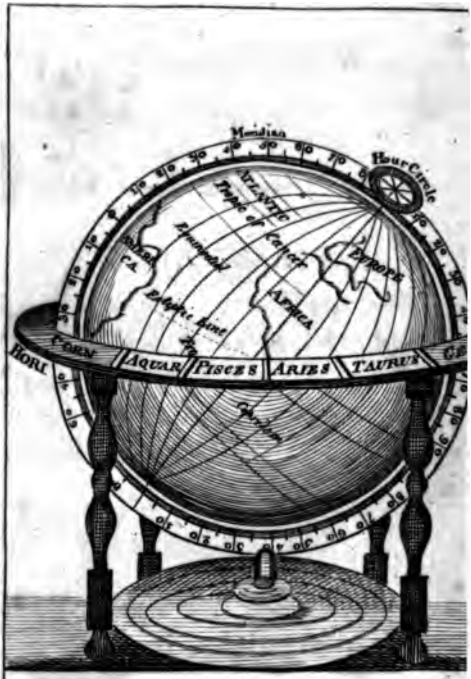
Q. What is the Zodiac?

A. A great Circle or Belt extending round the Heavens between the northern and southern Hemispheres.

12. Q. Name the twelve Signs of the Zodiac.

A. Aries the Ram,
Taurus the Bull,
Gemini the Twins,
Cancer the Crab,

Leo the Lion,
Virgo the Virgin,
Libra the Balance,
Scorpio the Scorpion,



THE TERRESTRIAL GLOBE.

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Sagittarius the Archer,
Capricornus the Goat,
Aquarius the Waterman,
Pisces the Fishes.

The foregoing Signs may be described thus:

The Ram, the Bull, the heav'nly Twins,
And next the Crab the Lion shines,
The Virgin and the Scales;
The Scorpion, Archer, and Sea-Goat,
The Man that holds the Water-pot,
And Fish with glitt'ring Tails.

13 Q. Are the Stars of any Use to us?

A. They serve to lessen the Gloom of our dark Nights in the Absence of the Moon: they are likewise of Use to Mariners, that especially called the Pole Star, towards which the North Pole of our Earth always points.

14 Q. When are any of the heavenly Bodies said to be vertical?

A. When they are in the Zenith, or exactly over our Heads.

15 Q. What are those Stars which we see sometimes fall to the Ground, or shoot through the Air?

A. There is no such Thing as a shooting or falling Star: those Appearances are only nitrous Vapours kindled in the Air, which are again quickly extinguished.

16 Q. What is the Atmosphere?

A. That Body of Air which surrounds and encompasses the Earth to a certain Height from its Surface.

Were it not for the Atmosphere to refract the Sun's Rays, we should have no Light even in the Day-time.

17 Q. What is the Cause of the Northern Lights?

A. The most general Opinion is, that they are occasioned by nitrous Vapours kindled in the northern Part of the Atmosphere, which communicating to other nitrous Vapours, set Fire to them, and so on in repeated Flashes, till they sometimes reach the Zenith.

18 Q. What is the Ignis Fatuus?

A. A Meteor, chiefly seen in the Night in marshy Meadows: it is called by the Vulgar, Will with a Whisp, and Jack with a Lanthern.

19 Q. How is it occasioned?

A. It is ascribed to inflammable Air, arising from putrid Vegetables, *&*c. which takes Fire by means of the Electricity of Fogs, and what are commonly called Falling Stars.

20 Q. How are the changing Seasons of Summer and Winter produced?

A. The Inclination* of the North

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* A Goose turning on a horizontal Spit before a Fire, is a proper Illustration of the diurnal Revolution of the Earth, wherein

Pole towards the Sun in the Course of the Earth's annual Revolution, gives lengthening Days and increasing Heat to the Inhabitants of the northern Hemisphere, and the Inclination of the South Pole to those of the southern Hemisphere.

ATTRACTION OF GRAVITATION.

21 Q. What is Attraction of Gravitation?

A. The Power which a greater Body has of attracting or drawing a less. Thus the Sun attracts the Planets, the Earth, and the Moon; and is called the Centre of Gravity.

22 Q. As the Sun attracts the Planets, how are they prevented from falling into it?

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wherein each Part is turned successively towards the Sun. The Spit placed parallel with the Grate shews the Position of our Earth in Spring and Autumn, when the Days and Nights are equal throughout the World. If one End is drawn gradually from the Fire, that will experience a Diminution of Heat, while it increases at the other End; and vice versa.

A. By the great Swiftness, or Velocity with which they pass round it.*

23 Q. Does the Earth possess this Power of Attraction?

A. The Earth, the Moon, and every large Body, possesses the Power of Attraction in Proportion to their Size, and the Quantity of Matter they contain.

24 Q. What are the Effects of the Earth's Attraction?

A. It preserves the Moon in its Orbit round the Earth; it keeps Objects firm on its Surface; and prevents the Water from falling out of the Ocean as the Earth turns round.

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* The Teacher may illustrate this by taking a String to which an ivory Ball is suspended, and fastening it with a Pin to a smooth Floor; and if the Ball is then bowled forward at the full Length of the String, it will exhibit the projectile or centrifugal Force of a Planet; while the String by which it is held shews the attractive or centripetal Force, and causes the Ball to pass in a circular Form round the Pin: this may represent the Motion of the Planets round the Sun.

25 Q. What are the Effects of the Moon's Attraction?

A. It has often an Influence on the Weather, and is the principal Cause of the Tides.

26 Q. What is meant by the Tide?

A. A regular and constant Motion of the Sea, which continues rising for six Hours, and after remaining at the highest about twelve Minutes, it is six Hours falling again, when it remains about twelve Minutes at rest before it again rises.

27 Q. How are the different Times of the Tide distinguished?

A When the Water rises, it is called the flowing, and when it falls, the ebbing of the Tide; when at the highest, high-water, and when at the lowest, low-water.

I would not conclude this Part with-

out addressing a few Words to my young Friends.

Do any of you ask, What Profit may I derive from a Study of the heavenly Bodies? I answer, It teaches us to consider the Stars, those Luminaries of Heaven, not as so many sparkling Studs, adorning a painted Canopy, but as the Centres of an infinite Number of Worlds, revolving with inconceivable Velocity, yet with the exactest Order, in their respective Orbits.

It gives us a very enlarged Idea of the Power of God, and the Extent of his Dominions; and affords a pleasing Source of Contemplation for our solitary Moments.

A right View of these sublime Subjects will constrain us to adore the paternal Love of our great Creator, whose Power is unbounded, and whose tender Mercy has provided for the Wants of all his Creatures.

May you then with the most profound Reverence adopt the pious Exclamation of the Psalmist: "When I consider "the Heavens, the Work of thy Fin"gers, the Moon and the Stars which "thou hast ordained; Lord, what is "Man thou art mindful of him, or the "Son of Man that thou visitest him!"

END OF ASTRONOMY.

ELEMENTS

OF USEFUL

KNOWLEDGE.

PART VII.

NATURAL PHILOSOPHY.

1 Q. WHAT is Natural Philosophy?

A. The Knowledge and Study of natural Things; according to Reason and Experience.

2 Q. Whence is the Word Philosophy derived?

A. From the Greek Word Philosophia, which signifies the Love of Wisdom.

3 Q. How are the Productions of the Earth distinguished?

A. They are divided into three Classes,

the Animal, Vegetable, and Mineral Kingdoms.

4 Q. What constitutes the first Class?

A. The Animal Kingdom comprises every Creature that has Life and Feeling; *(viz.)* Men, Beasts, Birds, Fishes, Insects, &c.

5 Q. What is worthy our Regard in the Animal Creation?

A. The flying of Birds through the Air; the swimming of Fishes in the Water; the beautiful Colours of Insects; the wonderful Variety of living Creatures, from the huge Elephant and Whale to the little Animalcula that cannot be seen with the naked Eye; each knowing its proper Food, and how to build its Habitation, by that surprising Instinct, which enables them to distinguish their Enemies, and to understand each other.

6 Q. What is the Vegetable Kingdom?

A. It comprehends such Things as have Life without Feeling, as Trees, Shrubs, Flowers, Herbs, Grass, &c.

7 Q. Are not many of these totally useless?

A. By no means; all are useful, either for Food, for Medicine, or some other Purpose.

8 Q. What does the Mineral Kingdom consist of?

A. Such Things as have neither Feeling nor Life, as Stones and Metals.

9 Q. How many Sorts of Metals are there?

A. Six; *(viz.)* Gold, Silver, Copper, Tin, Lead, and Iron.

10 Q. What other valuable Things are found beneath the Earth's Surface?

A. Coals, Chalk, Brimstone, Limestone; Clay for Bricks, Pipes and Earthenware; Quicksilver, Chrystals, Diamonds, and Loadstone.

11 Q. Would not the Earth be better if it was one wide extended Plain, without Mountains?

A. Certainly not: they receive the Vapours, the Rain and Snow, which Supply the Springs of Water: and besides attracting the Clouds, Mountains shelter the low Lands from bleak and cold Winds: they are also the grand Magazine of Metals, Stones, &c.

12 Q. What is a Volcano?

A. Combustible Materials burning in the Bowels of the Earth, emitting Smoke and Flame, and sometimes Torrents of melted Metals.

13 Q. What is an Earthquake?

A. A sudden Shaking or Motion of the Earth, which has often been so violent as to throw down Buildings. Sometimes the Earth has opened, and swallowed up whole Towns, with all their Inhabitants.

14 Q. What is the Cause of Earthquakes?

A. The principal Cause of Earthquakes is the Rarefaction of the Air in the subterraneous Caverns of the Earth, occasioned by the Heat of Volcanos, or subterraneous Fire.

15 Q. What is Thunder and Lightning?

A. Lightning is electrical Fire, darting from the Clouds, and is of the same Nature with that produced by the electrical Machine. Thunder is nothing more than the Sound of the Explosion, and is never heard till after the Flash is past.

16 Q. Is Lightning of any Use?

A. It consumes unwholesome Vapours, promotes a Circulation in the Air, and often brings on Rain when it is most wanted.

17 Q. How do you explain the Nature of Air?

A. It is that thin, light Fluid, in which we breathe and live: when it is agitated it runs in a Current like Water, and is then called Wind.

18 Q. What are the Names by which you distinguish the Winds?

A. According to the Points from which they blow: East, West, North, and South.

19 Q. What are the Qualities of the different Winds?

A. The North Wind is cold, because it blows from the North Frigid Zone; the South is warm, because it comes from the Torrid Zone; the East is dry, because it comes from the great Continent of Asia; and the West is moist, because it blows from the Atlantic Ocean.

20 Q. Of what Use are the Winds?

A. They purify the Air, moderate the Heat, dry up the Wet, and bring us Rain in due Season: they are very necessary also for the Sailing of Ships upon the Ocean.

21 Q. Has the Air any more peculiar Properties?

A. It conveys Sound. Without Air we should have no Music, no Smell, no Light, nor be able to converse with each other.

22 Q. Is not the Air so heavy sometimes as to cause a Difficulty in breathing?

A. That is a mistaken Opinion: our Difficulty in breathing proceeds from the rarefied State, or extreme Lightness of the Air.

23 Q. What is the Cause of its Rarefaction?

A. Air is rarefied by Heat.*

24 Q. How is Air condensed, or made heavier?

A. Usually by Cold.

25 Q. How can Water, which is so much heavier than Air, be made capable of floating in it, so as to form Clouds?

A. Water is also rarefied by Heat, as may be seen in a Kettle boiling over a Fire, from which the Water would all evaporate, or fly off in fine Particles, called Steam.

26 Q. Explain the Formation of Clouds.

A. Great Quantities of Vapour are continually drawn up by the Heat of the Sun from the Ocean, or moist Parts of the Earth, and by their Lightness float in the Air.

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* This is proved by holding a Bladder, containing but a small Quantity of Air, before a Fire, the Heat of which will so rarefy it, as to fill, and even burst the Bladder.

27 Q. What is the natural Cause of Rain?

A. The small Particles which form the Clouds uniting together become two heavy to be supported longer in the Air, so fall in Drops or Showers of Rain.

28 Q. What is a Fog or Mist?

A. Of the same Nature as Clouds, but is prevented by its Denseness or Weight from rising so high.

29 Q. How is the Dew produced?

A. From Vapours that continue to rise after Sun-set through the Heat of the Earth, but for Want of sufficient Warmth in the Atmosphere are condensed, and fall again to the Ground.

30 Q. Of what Service is the Dew?

A. It refreshes and invigorates weak and withering Herbs in a Time of Drought: and it is worthy our Attention that the Dew falls most plentifully in the hottest Weather, when it is most wanted.

31 Q. How is the Rainbow caused?

A. By the Rays of the Sun shining upon the falling Drops of Rain. It is always seen in that Part of the Heavens opposite to the Sun?

32 Q. What is Ice?

A. Water congealed, or made hard by a great Degree of Cold.

33 Q. What is the Use of Frost?

A. It clears the Atmosphere, strengthens the human frame, destroys hurtful Insects, and mellows the Clay Ground.

34 Q. How does the Frost operate so as to improve the Soil?

A. The Moisture with which the Ground is filled at the Commencement of Winter, swelling with the Frost, loosens the Particles of Earth from each other, and on the Return of a Thaw, leaves it in a State of Lightness and Melioration?

35 Q. What is Hail?

A. Drops of Rain, frozen in the upper Regions of the Air.

36 Q. What is Snow?

A. A frozen Cloud, the Particles of which meeting together, fall in large beautiful Flakes.

37 Q. What is the Use of Snow?

A. It preserves the Corn from being chilled by the Frost, and lessens the Gloom of our dark Winter Nights.

38 Q. How are our Springs and Rivers formed, and a constant Circulation of Moisture preserved?

A. The Rain and Snow form the Springs, the Springs form the Rivers, the Rivers run into the Sea, the Sea furnishes the rising Vapours, the Vapours form the Clouds, and the Clouds give the Rain.

39 Q. Why is the Sea so salt?

A. To preserve it from Corruption.

40 Q. How is this Saltness accounted for?

A. It may proceed from the Salt Particles that are constantly washed from the Land by the Rivers; or from Beds of Salt at the Bottom of the Ocean.

41 Q. What may be learnt from the foregoing Remarks?

A. That in the whole Course of Nature nothing comes by Chance, but is produced by some Cause; and that there must be a first great Cause,—which is God himself.

END OF PHILOSOPHY.

ELEMENTS

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PART VIII.

History and Chronology.

HISTORY.

1 Q. WHAT is History?

A. A Description of Things as they are, or have been, with a regular Account of their principal Facts and Circumstances.

2 Q. How is History divided?

A. History has various Divisions, in Regard to its Time, its Matter, and its Form.

3 Q. What are the Divisions as to Time?

A. With Respect to Time, History is divided into Ancient and Modern, distinguished into several Periods.

4 Q. What is Ancient History?

A. It includes an Account of all Things from the Creation of the World to the Birth of Christ.

5 Q. What is Modern History?

A. An Account of all Things from the Birth of Christ till the present Time.

6 Q. Into what Periods has History been divided?

A. Into the obscure or uncertain Age, the heroic or fabulous Age, and the historical Age.

7 Q. What was the obscure Age, and why is it so called?

A. It included the whole Time from the Creation of the World to the Deluge; and is called the obscure or uncertain Age, because we know no more than the short Account given of it in the Scriptures.

8 Q. What do you mean by the fabulous Age?

A. That Space of Time from the Deluge to the first Olympiad, which from the many feigned Stories related in it, is called the heroic or fabulous Age.

9 Q. How far does the historical Age extend?

A. From the first Olympiad to the present Time, and is called the historical Age, because the Actions done in that Period are recorded by Writers of true History.

10 Q. How is History divided with Regard to its Matter?

A. Into Sacred, Natural, Civil, Personal, and Singular History.

11 Q. What is Sacred History?

A. It is that which makes us acquainted with the Mysteries and Ceremonies of Religion, and of those divine Things of which God alone is the Author; such are the Scriptures of the Old and New Testaments.

12 Q. What is Profane History?

A. It is the general Name given to Histories on all other Subjects.

13 Q. What is meant by Natural History?

A. A Description of natural Things, whether terrestrial, as Animals, Vegetables, Minerals, Fire, Water, *&c.* or celestial, as Stars, Comets, Planets, *&c.*

14 Q. In what does Civil History consist?

A. In a Narration of Facts relating to People, States, Republics, Cities, &c.—Civil History in its more unlimitted Sense is called Universal History.

15 Q. What Part of Civil History has the first Claim on our Attention?

A. That which relates to the Transactions and Events of our own Country, called the History of England.

16 Q. To what Subject is Personal History applied?

A. To a Narrative which gives the Life of some particular Person: it is also called Biography.

17 Q. What is Singular History?

A. It is that which describes a single Action, Siege, Battle, or even a War or Expedition.

18 Q. How is History divided as to its Form?

A. Into Simple and Figurative.

A.	60 Seconds	make	1 Minute
	60 Minutes		1 Hour
	24 Hours		1 Day
	7 Days		1 Week
	4 Weeks		1 Month
	52 Weeks		1 Year
	12 Months		1 Year

365 Days and 6 Hours make 1 Solar Year, or is the Space of Time the Earth takes in performing its Revolution round the Sun.

4 Q. When does our Year begin?

A. On the 1st of January, called New-Year's-Day.

5 Q. What are the Names of the twelve Months?

A. January, February, March, April, May, June, July, August, September, October, November, December.

6 Q. How many Days does each Month consist of?

A. Thirty Days has rich September,
April, June, and dark November;
February twenty-eight alone,
And all the rest have thirty-one;
But Leap-year comes one Year in four,
When February's one Day more.

7 Q. Why is a Day annexed to every fourth Year?

A. Because the six Hours, which are above the three hundred and sixty-five Days, in four Years amount to one Day, which is placed to the End of February, and it is then called Leap-year.

8 Q. What Names are given to the different Seasons of the Year?

A. Spring, Summer, Autumn, and Winter.

9 Q. When does each Season commence?

A. Spring begins on the twentieth of March, Summer on the twenty-first of June, Autumn on the twenty-third of

September, and Winter on the twenty-first of December.

10 Q. What is an Epoch?

A. Any particular Time from which Historians date Events, as the Creation of the World, the Birth of Christ, *&c.*

11 Q. From which do we reckon?

A. From the Birth of Christ, called the Christian Epoch; as when we write 1807, we mean the one thousand eight hundred and seventh Year since the Birth of Christ.

12 Q. Is it not also called an Era?

A. An Era, properly so called, is a Portion of Time from one remarkable Event to another.

13 Q. What is an Age or Century?

A. One hundred Years.

14 Q. What is a Lustrum?

A. A Space of five Years, used chiefly by the Roman Poets.

15 Q. What is an Olympiad?

A. A Space of four Years, by which the ancient Greeks reckoned their Time, since the Institution of the Olympic Games, in a Plain near Olympia.

16 Q. When, and by whom were they introduced?

A. They were instituted by Hercules, in Honour of Jupiter, 774 Years before Christ, and were celebrated at the Beginning of every fifth Year.

17 Q. What is an Indiction?

A. A Revolution of fifteen Years, used by the Romans, to indicate the Time of certain Payments made by the People to the Government.

18 Q. What is a Cycle?

A. A Period of Time, in which the same Revolution begins again, as those of the Sun and Moon.

19 Q. What do you mean by a Cycle of the Sun?

A. A Cycle of the Sun, or solar Cycle, is a Period of twenty-eight Years, which being passed, the Days of the Month return again to the same Days of the Week.

20 Q. What is a Cycle of the Moon?

A. A Period of twenty-nine Years, in which Time the new and full Moons return again to the same Days of the Year: this is called the Lunar Cycle.

21 Q. What is the Use of those Cycles?

A. To shew on what Day Easter will fall for any Number of Years to come, as may be seen by the Tables prefixed to the Books of Common Prayer.

22 Q. What is a Jubilee?

A. A public Festival or Rejoicing, held at stated and regular Periods, on Account of some remarkable Event, or in Memory of some eminent Person.

END OF CHRONOLOGY.

ELEMENTS

OF USEFUL

KNOWLEDGE.

PART IX.

GRAMMAR.

1 Q. WHAT is Grammar?

A. The Art of speaking and writing correctly.

2 Q. How many Letters does the English Alphabet consist of?

A. Twenty-six.

3 Q. What is a Vowel?

A. A Letter which makes a distinct Sound of itself. The Vowels are, a, e, i, o, u, and sometimes y.

4 Q. What is a Consonant?

A. A Letter which cannot be sounded without having a Vowel joined to it.

The Consonants are all the Letters except the Vowels.

5 Q. What is a Dipthong?

A. The Meeting of two Vowels in the same Syllable; as, *ai* in Maid; *ou* in Flour; &c.

6 Q. What is a Tripthong?

A. The Meeting of three Vowels in the same Syllable; as, *eau* in Beauty; *uee* in Queen; &c.

7 Q. What is Punctuation?

A. The Art of distinguishing the several Stops or Points in a Sentence.

8 Q. What are the principal Marks made use of in writing?

A. The Comma———— ,
Semicolon———— ;
Colon———— :
Period———— .
Note of Interrogation— ?
Note of Admiration—— !

9 Q. How long should we stop at each

A. At a Comma, while we can count *one*; at a Semicolon, *two*; at a Colon, *three*; at a Period, *four*. The Pauses at the Notes of Interrogation and Admiration are not always the same, but vary according to the Sense.

10 Q. When are the Notes of Interrogation and Admiration used?

A. The Note of Interrogation is placed after a Question; as, *Whose Son is he?* And the Note of Admiration, after a Word or Sentence expressing Surprise or Emotion; as, *What a fine Boy!*

11 Q. What other Marks are used in reading?

A. The

Quotation	"—"	Apostrophe	'
Parenthesis	( )	Paragraph	¶
Caret	‸	Asterisk	*
Hyphen	-	Obelisk	†

12 Q. What is the Use of a Quotation?

A. It includes a Sentence taken from

another Book, or spoke by another Person; as, Christ says, "*Swear not at all.*"

A *Parenthesis* is used to include one Sentence in another, which might have been omitted without injuring the Sense; as, *The Way to Happiness (altho' so plain) is frequently mistaken.*

A *Caret* is placed under a Line where a Letter or Word is left out through Mistake; as, *Some Boys* $\overset{are}{\wedge}$ *quarrelsome.*

A *Hyphen* joins the Parts of a compound Word together; as, *Hay-loft.*

It is used also where a Word of two or more Syllables is written partly on one Line, and partly on another.

An *Apostrophe* is used when a Word is shortened by the Omission of a Letter or Letters; as, *lov'd* for *loved.*

A *Paragraph* is used chiefly in the Bible, and denotes the Beginning of a new Subject.

An *Asterisk*, *Obelisk*, and sometimes other Marks, are used to point out Something remarkable in the Margin, or at the Bottom of the Page.

13 Q. Name the ten Parts of Speech.

A. Article, Noun, Adjective, Pronoun, Verb, Participle, Adverb, Conjunction, Preposition, and Interjection.

14 Q. What is an Article?

A. A Word set before a Noun, to point it out more plainly; as, *a* Boy *the* Boy; *an* Apple, *the* Apple. The Articles are *a* or *an*, and *the*.

15 Q. In what Respect do the Articles differ?

A. The Article a or an is called indefinite, as *a* Boy stole *an* Apple; without alluding to any particular Boy and Apple.

The is called the definite Article; as *the* Boy stole *the* Apple; meaning some particular Boy and Apple.

An is used instead of a, when the next Word begins with a Vowel.

16 Q. What is a Noun or Substantive?

A. The Name of any Person, Place or Thing; as, *Man*, *Oxford*, *Virtue*.

17 Q. How many Numbers belong to Nouns?

A. Two; the singular, which means one; as, *Book*; and the plural, which speaks of more than one; as, *Books*.

18 Q. How is the plural usually formed?

A. By adding s to the singular.

19 Q. How many Genders are there?

A. Three: the masculine, or all Things of the male Kind; as, *a Man*, *a Boy*.

The feminine, or all Things of the female Kind; as, *a Woman*, *a Girl*.

The neuter, or Things without Life; as, *a Town*, *a Tree*.

20 Q. How many Cases have Nouns?

A. The nominative, and the genitive.

21 Q. How do you form the genitive Case?

A. By adding s with an Apostrophe to the nominative; as, The *King's* Crown.

22 Q. What is an Adjective?

A. A Word set before Nouns to express their Quality; as, A *fine* Lady, a *great* Man, a *small* House.

23 Q. How many Degrees of Comparison belong to Adjectives?

A. Three: the positive, comparative, and superlative; as,

POS.	COMP.	SUPER.
fine	finer	finest
great	greater	greatest
small	smaller	smallest

The comparative is usually formed by adding r or er to the positive, and the superlative by adding st or est.

24 Q. What is a Pronoun?

A. A Word used instead of a Noun, to prevent the too frequent Repetition of *it*; as, My Horse is valuable; *he* is strong, and *he* is active.

25 Q How many Persons belong to Pronouns?

A. Three; (*viz.*) The first Person, who is the Person speaking; the second, who is the Person spoken to; and the third, who is the Person spoken of.

26 Q. What Cases belong to Pronouns?

A. The nominative, genitive, and objective.

27 Q. How do you distinguish them?

A. The nominative comes before the Verb; as,

SING.	PLUR.
I love	*We* love
Thou lovest	*Ye* love
He loves	*They* love

The objective comes after the Verb; as,

SING.	PLUR.
Love *me*	Love *us*
Love *thee*	Love *you*
Love *him*	Love *them*

The genitive Case signifies Property; as, *My* House, *your* House, *his* House.

28 Q. What is a Verb?

A. Any Word that signifies to do, or to be; as, I *love*, you *write*, I *am*, he *is*.

29 Q. What is the Meaning of Mode and Tense?

A. Mode is the Manner of using the Verb.

Tense has Reference to the Time in which an Action is performed.

30 Q. What are the auxiliary Signs?

A. To, may, can, must, might, would, could, should, do, did, have, had, shall, will.

31 Q. How are they applied?

A. To, is the Sign of the infinitive Mode.

May, can, must, might, would, could, should, are Signs of the potential Mode.

Do, is a Sign of the present Tense.

Did, is a Sign of the imperfect Tense.

Have, is a Sign of the perfect Tense.

Had, is a Sign of the pluperfect Tense.

Shall and will, are Signs of the future Tense.

32 Q. What are the Modes?

A. The indicative, the imperative, the potential, and the infinitive.

33 Q. What are the Tenses?

A. The present, the imperfect, the perfect, the pluperfect, and the future.

34 Q. How are these Modes and Tenses expressed?

A. Partly by the Verb itself, and partly by the Assistance of Signs.

35 Q. Explain the Modes.

A. The indicative expresses the Action or Being directly and absolutely; as, I *love*, he *is*.

The imperative commands or forbids; as, *Come*, *go*, *hear* me.

The potential expresses the Action or Being, as possible or impossible, fit or unfit; as, *I may love*, *I may not love*.

The infinitive expresses the Action or Being indeterminately; as, *To love*, *to be.*

36 Q. Explain the Tenses.

A. The present Tense expresses the Time present; as, I *love*, you *are.*

The imperfect denotes the Time past indeterminately; as, I *loved*, you *were.*

The perfect denotes the Time past determinately; as, I *have loved.*

The pluperfect as the Time past, and as being before some Point of Time referred to in the Sentence; as, I *had seen* it before he came.

37 Q. What is a Participle?

A. A Word derived from a Verb, and partaking of the Nature of it; as, from the Verb *call* are derived the Participles *calling* and *called.*

38 Q. What is an Adverb?

A. A Part of Speech added to a Verb, an Adjective, a Participle, and sometimes to another Adverb, to express the Manner and other Circumstances of an Action; as, She looks *well*, she is *extremely* hearty, she is *diligently* employed, she speaks *very grammatically*.

39 Q. What is a Conjunction?

A. A Word that joins Sentences, or the different Parts of a Sentence together; as, My Brother and I went; *but* we *neither* saw it *nor* heard it.

40 Q. What is a Preposition?

A. A Word set before Nouns or Pronouns, to express the Relations of Persons, Places or Things to each other as, He stood *by* me *in* the Market.

41 Q. What is an Interjection?

A. A Word that expresses any sudden Emotion or Passion of the Mind; as, *Ah! alas! O! oh!*

END OF GRAMMAR.

ELEMENTS

OF USEFUL

KNOWLEDGE.

PART X.

ARITHMETIC.

Q. WHAT is Arithmetic?

A. The Art or Science of reckoning by Numbers; and consists of five principal or fundamental Rules: *(viz.)* Numeration, Addition, Subtraction, Multiplication, and Division.

Q. What is Numeration?

A. It teaches to express any Number either by Words or Characters, and shews the true Value of Figures according to the Places* in which they stand.

---

* Thus 3 we read three; prefixt to a Cipher, thirty; to two Ciphers, three hundred, &c.

NUMERATION TABLE.

C Millions	X Millions	Millions	C Thousands	X Thousands	Thousands	Hundreds	Tens	Units
								1
							1	2
						1	2	3
					1	2	3	4
				1	2	3	4	5
			1	2	3	4	5	6
		1	2	3	4	5	6	7
	1	2	3	4	5	6	7	8
1	2	3	4	5	6	7	8	9

Q. Write down in proper Figures the following Numbers.

Forty-three.

Five hundred, and sixty-nine.

Seven thousand, and forty.

Fifty thousand, one hundred and three.

Three hundred thousand and twelve.

One Million, ninety-seven thousand, two hundred and thirty-six.

Forty million, seventy thousand, four hundred and thirty-seven.

Two hundred million, and fifty-one.

Q. Write down in proper Words the following Numbers.

43	68103	40172437	706520904
569	314512	819624109	368009572
7940	1897286	758462298	42990057

NUMERATION BY ROMAN LETTERS.

I	One	XXX	Thirty
II	Two	XL	Forty
III	Three	L	Fifty
IV	Four	LX	Sixty
V	Five	LXX	Seventy
VI	Six	LXXX	Eighty
VII	Seven	XC	Ninety
VIII	Eight	C	One Hundred
IX	Nine	CC	Two Hundred
X	Ten	CCC	Three Hundred
XI	Eleven	CCCC	Four Hundred
XII	Twelve	D	Five Hundred
XIII	Thirteen	DC	Six Hundred
XIV	Fourteen	DCC	Seven hundred
XV	Fifteeen	DCCC	Eight hundred
XVI	Sixteen	DCCCC	Nine hundred
XVII	Seventeen	M	One thousand
XVIII	Eighteen	MDCCCVI	One thousand eight hundred and six.
XIX	Nineteen		
XX	Twenty		

ADDITION.

Q. What is Addition?

A. The adding together two or more Numbers, so as to make one total Sum, according to the following

RULE:

Place Units under Units, Tens under Tens, &c. then beginning with the right Hand or Unit's Row, add it up to the Top; set down the Units, and carry the Tens to the next Row; and so on to the last, of which set down the whole Amount.

EXAMPLES.

4	47	596	9672	87234
7	56	792	756	8765
6	95	87	5401	912
7	81	659	2345	34567
8	24	478	6789	89145
5	32	854	123	7633
3	89	59	4567	45876
9	65	245	890	6345
49	489	3770		

APPLICATION.

Q. What is the Sum of 90, 567, 892, and 3459? *Answer* 5008.

Q. His Majesty George the III. was born in the Year 1738; in what Year was he aged 68? *Ans.* in 1806.

Q. Four Boys make a joint Stock of Marbles; John puts in 139, Thomas 108, William 97, and Charles 94: what is the Amount of the whole Stock?

Ans. 438.

SUBTRACTION.

Q What is the Use of Subtraction?

A. It teaches to take a less Number from a greater, and shews the Remainder or Difference.

RULE.

Write the less Number under the greater; Units under Units, Tens under Tens, &c. Begin at the Unit's Place, and take every lower Figure from the higher. Where the higher Figure is the least, borrow 10, and add it thereto before you subtract, and for every 10, so borrowed, add one to the next lower Figure.

Q. How do you prove Subtraction?

A. By adding the two lowest Numbers together, and if the Operation is right, the Sum will be the same as the Upper.

EXAMPLES.

From	7456	20073	390658
Take	7260	4049	291429
Rem.	196	16024	
Proof	7456	20073	

APPLICATION.

Q. What is the Difference between 8060, and 789? *Ans.* 7271.

Q. The King of France was beheaded in 1793; how long is it since to the Year 1806? *Ans.* 13 Years.

MULTIPLICATION.

Q. What do you understand by Multiplication?

A. The finding how much any Number amounts to by being repeated any given Number of Times.

TABLE.

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
5	10	15	20	25	30	35	40	45	50	55	60
6	12	18	24	30	36	42	48	54	60	66	72
7	14	21	28	35	42	49	56	63	70	77	84
8	16	24	32	40	48	56	64	72	80	88	96
9	18	27	36	45	54	63	72	81	90	99	108
10	20	30	40	50	60	70	80	90	100	110	120
11	22	33	44	55	66	77	88	99	110	121	132
12	24	36	48	60	72	84	96	108	120	132	144

RULE.

Place the Figures as beneath, and beginning at the Unit's Place, multiply each Figure of the Multiplicand, set down the Units, and carry the Tens to the Product of the next Figure.

If the Multiplier consists of a higher Number than 12, multiply by each Figure of the Multiplier separately, and add the Products together.

EXAMPLES.

Multiplicand	4865236	76599068
Multiplier. - -	2	3
Product - -	9730472	229797204

Multiply 123456789 by 4, 5, 6, 7, 8, 9, 10, 11, and 12 respectively.

Multiply	5678932	57853440
by	267	604080
	39752524	46282752
	34073592	23141376
	11357864	34712064
	1516274844	34948106035200

APPLICATION.

Q. What is the Number of Inhabitants in a Town, containing 385 Houses, and each House five Persons?

Ans. 1925 Persons.

DIVISION.

Q. What is the Use of Division?

A. It teaches to find how often one Number is contained in another.

RULE.

Observe how often the Divisor is contained in the first, or if that is too small, in the two first Figures; set it underneath, and if any remain, account them as so many Tens, which prefix to the next Figure, and proceed as before.

EXAMPLES.

	Dividend.	
Divisor	3)7478919	4)376531
Quotient	2492973	94132—3 Rem.
Multiply by	3	4
Proof -	7478919	376531

Divide 987654321 by 5,6,7,8,9,10,11, and 12 resepectively.

LONG DIVISION.

Q. When is Long Division used?

A. When the Divisor consists of a greater Number than 12.

Q. How is it performed?

A. Take the fewest Figures of the Dividend which will contain the Divisor. Ask how often the Divisor is contained therein. Place the Answer in the Quotient, and multiply the Divisor thereby. Write the Product under the said distinguished Part of the Dividend from which subtract it. To the Remainder annex the next Figure of the Dividend. Then ask how often the Divisor is contained in that Number as before. Thus proceed till you have gone through all the Figures of the Dividend. What is then left will be a Remainder.

EXAMPLES.

```
45)9975(221          684)511049(747
   90                    4788
   ——                    ————
    97                   3224
    90                   2736
    ——                   ————
     75                   4889
     45                   4788
     ——                   ————
     30                    101
```

Divide 72626724 by 54. Quot. 1344939. Rem. 18.
Divide 36427050 by 855. Quot. 42604. Rem. 630.

Q. How is the Work performed if there are Ciphers on the right Hand of the Divisor.

A. The Ciphers must be cut off, and as many Figures from the right Hand of the Dividend; then divide as if both were wanting, only the Figures which were cut off from the Dividend must be annexed to the Remainder.

EXAMPLES.

```
7,0)7845,9              12,0)67582,1
    ------                   -------
    1120—59 Rem.            5631—101 Rem.

45,00)75670,56(1681   81,000)111145,563(1372
      45                     81
      --                     --
      306                    301
      270                    243
      ---                    ---
       367                    584
       360                    567
       ---                    ---
         70                    175
         45                    162
         --                    ---
         2556 Rem.             13563 Rem.
```

Divide 37065807 by 870.
Quot. 42604. Rem. 327.
Divide 74278501 by 1100.
Quot. 67525. Rem. 1001.
Divide 17058572 by 7020.
Quot. 2429. Rem. 6992.

APPLICATION.

Q. A Father divided 45 Plums among three of his Children; how many came to the Share of each?

Ans. 15.

Q. How many Bullocks at £6. each can be bought for £1776?

Ans. 296.

FINIS

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